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AGRICULTURAL RESEARCH SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Dairy-Herd-Improvement Letter

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18,882 SIRES SUMMARIZED IN DHIA IN 1962

During the period July-September 1962, 18,882 sires with daughters in DHIA herds were summarized. These sire summaries were forwarded to the State Extension Dairymen in October 1962. The numbers of bulls summarized by breed were as follows: Ayrshire, 801; Guernsey, 5,543; Holstein, 8,873; Jersey, 2,956; Brown Swiss, 519; Milking Shorthorn, 170; Red Dane, 12; Red Poll, 6; and mixed breed, 2.

The number of sires summarized by States is presented in Table 1. Sires with daughters in several States are included more than once in these counts, since each State receives a copy of the summary of each sire which had one or more daughters in that State.

In Tables 2-13 are presented stratifications of non-AI sires on the milk and butterfat levels of herdmates of the daughters. These stratifications provide information regarding the levels of herd production in which natural-service sires of the breed were used. As a means of determining whether these natural service sires were used in above or below average herds, one may compare the data in these tables to the following DHIA breed averages (milk production) for the period 1956-59; Ayrshire, 9,426; Guernsey, 8,367; Holstein, 12,095; Jersey, 7,868; Brown Swiss, 10,720; and Milking Shorthorn, 8,408. Using these averages as guides, there is evidence that these sires were used in herds slightly above the average condition for the breed.

The summary line in each table provides a means of determining the proportion of sires which increased daughters'

production over the level of the herdmates. From these comparisons one can easily see that the proportion of plus-proved sires is considerably less than 50 per cent for all breeds. The difference in this proportion among breeds may in part be due to the inclusion of breed differences in the daughter-herdmate comparisons, thus handicapping sires of the high-fat test breeds. However, there is likely to be less mixing of breeds in natural-service DHIA herds than in DHIA herds using A. I. Effective with January 1, 1962, calving dates, herd-year-season averages will be compiled on a within-breed basis.

The relatively low proportion of sires increasing daughters' production over that of herdmates is indicative of a lack of success in selecting sires on the basis of pedigree information alone. Also, this may indicate that some selection may have been exerted for characteristics other than production.

Finally, the fact that the proportion of plus-summarized sires departs markedly from 50 per cent indicates that one should avoid thinking of this criterion as an absolute measure of breeding worth. The purpose of the daughter-herdmate comparison is to rank a group of bulls in order of their breeding value. Unfortunately, many tend to use a bull's comparison as an absolute measure of breeding value in relation to a base value of zero. None of the common sire selection criteria are intended for this type of application.

TABLE 1.--NUMBER OF SIRE RECORDS SUMMARIZED 08-62, BY STATE AND BREED *

STATE	AYRSHIRE	GUERNSEY	HOLSTEIN	JERSEY	BR. SWISS	SHORTHORN	RED DANF	OTHER	RED POLL	TOTAL
MAINE -----	37	139	205	94	8	5				488
NEW HAMPSHIRE --	60	126	183	111	6	3				489
VERMONT -----	112	195	386	318	20	4	1			1,036
MASSACHUSETTS --	84	283	353	188	30	2				940
RHODE ISLAND ---	28	67	98	54	2					249
CONNECTICUT ----	92	358	356	116	26	2				950
NEW YORK -----	232	617	1,578	372	70	10		1		2,880
NEW JERSEY -----	11	335	327	89	30					792
PENNSYLVANIA ---	166	1,049	995	276	53	10				2,549
OHIO -----	45	437	516	323	58	11			1	1,391
INDIANA -----	37	453	515	188	59	13	1			1,296
ILLINOIS -----	47	461	647	166	73	13			3	1,410
MICHIGAN -----	39	391	917	210	52	13				1,628
WISCONSIN -----	42	610	1,654	173	100	32	1		1	2,613
MINNESOTA -----	77	350	1,109	190	82	27				1,835
IOWA -----	112	396	994	218	126	33	1		3	1,863
MISSOURI -----	1	223	287	153	24	7				695
NORTH DAKOTA ---	1	33	195	8	33	9				279
SOUTH DAKOTA ---	14	22	145	15	16					212
NEBRASKA -----	9	150	238	23	22	12				454
KANSAS -----	75	151	432	76	47	22				803
DELAWARE -----	23	117	110	19	7					276
MARYLAND -----	78	442	623	96	47	6		1		1,293
VIRGINIA -----	53	515	716	117	23	6				1,430
WEST VIRGINIA --	20	100	191	45	5					361
NORTH CAROLINA -	39	366	421	167	29	1				1,043
SOUTH CAROLINA -	16	312	213	88	22					651
GEORGIA -----	30	139	217	114	26					526
FLORIDA -----	21	336	139	203	10		1			710
KENTUCKY -----	8	105	231	116	15					475
TENNESSEE -----	5	200	110	178	2	1				496
ALABAMA -----	20	121	169	184	13					507
MISSISSIPPI ----	13	101	60	133	7					374
ARKANSAS -----	2	78	75	53	2	3				213
LOUISIANA -----	3	155	59	34	1					252
OKLAHOMA -----	23	84	158	61	11	9				346
TEXAS -----	27	108	278	242	32	1				748
MONTANA -----	2	32	67	16	12	2				131
IDAHO -----	2	161	176	131	12	1				483
WYOMING -----		8	24		1					33
COLORADO -----	14	106	158	56	25	1				360
NEW MEXICO -----	1	132	28	35						196
ARIZONA -----	4	80	141	25	6					256
UTAH -----		80	174	62	2					318
NEVADA -----		37	8	25						70
WASHINGTON -----	30	267	308	188	16	6	1			816
OREGON -----	13	242	196	259	18	5				733
CALIFORNIA -----	3	149	115	61	3					331
PUERTO RICO ----		1	13	1						15
HAWAII -----			5							5
ALASKA -----		1	3				1			5
TOTAL **	801	5,543	8,873	2,956	519	170	12	2	6	18,882

* The number listed for each State frequently includes 1 or more sires summarized with records from some other State as well as from the State indicated.

** The totals given here omit duplications of sires.

TABLE 2.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

AYRSHIRE									
MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION				
					DAUGHTERS		HERD MATES		
					MILK POUNDS	BUTTERFAT % POUNDS	MILK POUNDS	BUTTERFAT % POUNDS	
UNDER 6500----	1		1	7	5,366	4.2 225	6,272	4.2 261	
6500 - 7499----	18	2	16	160	6,417	4.0 255	6,963	3.9 275	
7500 - 8499----	64	27	37	645	8,042	4.1 328	8,166	4.0 329	
8500 - 9499----	198	90	108	1,984	8,940	4.1 363	9,040	4.1 366	
9500 - 10499----	249	102	147	2,855	9,714	4.1 398	9,958	4.1 404	
10500-11499----	130	37	93	1,410	10,285	4.1 423	10,862	4.1 440	
11500-12499----	36	11	25	293	11,242	4.1 460	11,835	4.0 471	
12500-13499----	3	1	2	32	13,218	4.1 546	12,889	4.1 527	
13500-14499----	1		1	4	11,048	4.4 489	13,715	4.0 553	
TOTAL OR AVERAGE-----	700	270	430	7,390	9,453	4.1 386	9,734	4.0 394	

TABLE 3.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERD MATES

AYRSHIRE									
BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION				
					DAUGHTERS		HERD MATES		
					MILK POUNDS	BUTTERFAT % POUNDS	MILK POUNDS	BUTTERFAT % POUNDS	
UNDER 275-----	11	1	10	98	6,155	3.9 239	6,789	3.9 262	
275 - 299-----	10	4	6	107	6,828	4.0 276	7,308	4.0 289	
300 - 324-----	25	13	12	192	7,882	4.0 317	8,131	3.9 315	
325 - 349-----	66	32	34	673	8,395	4.0 337	8,508	4.0 339	
350 - 374-----	120	57	63	1,227	8,925	4.0 360	9,018	4.0 363	
375 - 399-----	148	58	90	1,501	9,385	4.1 383	9,579	4.1 388	
400 - 424-----	142	58	84	1,656	9,804	4.1 402	10,175	4.1 412	
425 - 449-----	99	35	64	1,134	10,199	4.1 422	10,622	4.1 435	
450 - 474-----	58	23	35	610	10,647	4.2 442	11,237	4.1 458	
475 - 499-----	13	7	6	130	11,474	4.2 481	11,707	4.1 483	
500 - 524-----	5	4	1	37	13,153	4.2 549	12,418	4.1 511	
525 - 549-----	1		1	6	11,770	4.4 517	12,223	4.4 543	
550 - 574-----	2		2	19	11,815	4.2 502	13,510	4.1 552	
TOTAL OR AVERAGE-----	700	292	408	7,390	9,453	4.1 386	9,734	4.0 394	

TABLE 4.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

GUERNSEY									
MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION				
					DAUGHTERS		HERD MATES		
					MILK POUNDS	BUTTERFAT % POUNDS	MILK POUNDS	BUTTERFAT % POUNDS	
UNDER 6500----	49	21	28	452	5,914	4.3 281	6,022	4.7 285	
6500 - 7499----	377	153	224	4,455	6,945	4.3 333	7,146	4.7 339	
7500 - 8499----	1,382	493	889	15,416	7,801	4.3 378	8,067	4.3 385	
8500 - 9499----	1,836	674	1,162	22,865	8,712	4.3 423	8,983	4.3 429	
9500 - 10499----	800	264	536	10,378	9,466	4.3 461	9,890	4.3 471	
10500-11499----	149	45	104	1,599	10,225	4.3 500	10,824	4.7 513	
11500-12499----	29	3	26	244	9,770	4.3 433	11,756	4.5 531	
12500-13499----	5		5	29	8,841	4.5 399	12,826	3.9 495	
13500-14499----	3		3	11	11,117	4.7 524	13,660	4.1 557	
TOTAL OR AVERAGE-----	4,630	1,653	2,977	55,449	8,454	4.3 410	8,769	4.3 418	

TABLE 5.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI Sires SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERD MATES

GUERNSEY										
BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRE NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS		HERD MATES		BUTTERFAT	
					MILK POUNDS	BUTTERFAT % POUNDS		MILK POUNDS	BUTTERFAT % POUNDS	
UNDER 275-----	14	7	7	137	5,576	4.5	254	5,779	4.5	259
275 - 299-----	42	18	24	832	6,157	4.6	286	6,372	4.5	289
300 - 324-----	89	38	51	1,006	6,618	4.6	307	7,001	4.5	315
325 - 349-----	233	93	140	2,494	7,022	4.7	331	7,299	4.6	339
350 - 374-----	489	190	299	5,353	7,399	4.8	353	7,799	4.7	363
375 - 399-----	804	328	476	8,985	7,925	4.8	380	8,239	4.7	388
400 - 424-----	881	389	492	10,338	8,380	4.8	406	8,678	4.7	412
425 - 449-----	923	409	514	11,442	8,843	4.9	430	9,123	4.8	436
450 - 474-----	608	263	345	7,738	9,219	4.9	453	9,560	4.8	461
475 - 499-----	293	152	141	4,171	9,685	5.0	481	9,934	4.9	485
500 - 524-----	152	54	98	1,822	9,987	5.0	498	10,400	4.9	510
525 - 549-----	70	29	41	806	10,363	5.0	521	10,762	5.0	535
550 - 574-----	18	6	12	239	11,200	5.0	564	11,189	5.0	562
575 - 599-----	6	2	4	34	11,292	5.0	568	11,577	5.0	583
600 - 624-----	5	2	3	29	10,626	5.1	544	11,607	5.2	608
625 - 649-----	2		2	15	11,768	5.1	599	12,041	5.2	626
OVER 649-----	1		1	8	13,011	4.9	640	13,517	4.9	664
TOTAL OR AVERAGE-----	4,630	1,980	2,650	55,449	8,454	4.9	410	8,769	4.8	418

TABLE 6.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI Sires SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERD MATES

HOLSTEIN										
MILK PRODUCTION RANGE OF HERD MATES POUNDS	SIRE'S NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION				HERD MATES BUTTERFAT % POUNDS	
					MILK POUNDS	BUTTERFAT %	DAUGHTERS POUNDS	MILK POUNDS		
6500 - 7499----	5	4	1	28	8,297	3.5	292	8,899	4.0	275
7500 - 8499----	38	21	17	466	8,663	3.7	323	8,061	4.0	319
8500 - 9499----	128	64	64	1,168	9,402	3.7	344	9,106	3.8	344
9500 - 10499----	406	163	243	4,406	9,938	3.6	361	10,108	3.7	371
10500-11499----	1,136	538	598	11,897	11,032	3.6	402	11,058	3.7	405
11500-12499----	2,034	910	1,124	25,298	11,908	3.7	435	12,034	3.6	439
12500-13499----	2,091	946	1,145	26,443	12,861	3.7	470	12,978	3.7	474
13500-14499----	1,238	558	680	15,686	13,777	3.7	504	13,933	3.6	507
14500-15499----	407	163	244	4,647	14,566	3.7	533	14,893	3.6	543
15500-16499----	115	49	66	1,107	15,620	3.6	568	15,840	3.6	575
OVER 16500----	34	15	19	351	16,387	3.6	588	17,012	3.6	614
TOTAL OR AVERAGE-----	7,632	3,431	4,201	91,497	12,394	3.7	452	12,513	3.7	457

TABLE 7.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPEO ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERO MATES

HOLSTEIN										
BUTTERFAT PRODUCTION RANGE OF HERO MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERO MATES NUMBER	AVERAGE PRODUCTION					
					MILK POUNDS	BUTTERFAT % POUNDS	HERO MILK POUNDS	MATES BUTTERFAT % POUNDS		
UNDER 275-----	3	1	2	16	7,475	3.5	263	6,993	3.5	247
275 - 299-----	14	7	7	105	7,991	3.6	284	7,964	3.7	291
300 - 324-----	47	19	28	569	8,693	3.6	314	8,645	3.6	315
325 - 349-----	125	43	82	1,479	9,309	3.5	329	9,521	3.6	339
350 - 374-----	268	118	150	2,783	10,034	3.6	359	10,117	3.6	364
375 - 399-----	581	244	337	5,876	10,632	3.6	383	10,764	3.6	388
400 - 424-----	963	456	507	10,546	11,397	3.6	411	11,431	3.6	413
425 - 449-----	1,354	626	728	17,085	11,931	3.6	433	12,060	3.6	438
450 - 474-----	1,479	688	791	18,757	12,537	3.7	458	12,654	3.7	462
475 - 499-----	1,263	607	656	15,598	13,189	3.7	483	13,274	3.7	487
500 - 524-----	801	362	439	9,780	13,728	3.7	507	13,852	3.7	511
525 - 549-----	406	176	230	5,483	14,190	3.7	526	14,437	3.7	535
550 - 574-----	200	86	114	2,053	14,695	3.7	549	14,977	3.7	561
575 - 599-----	80	38	42	921	15,437	3.7	578	15,657	3.7	587
600 - 624-----	33	18	15	335	15,954	3.8	605	16,201	3.8	612
625 - 649-----	8	4	4	57	15,808	3.9	613	16,100	4.0	636
OVER 649-----	7		7	54	14,916	3.9	577	16,919	4.0	675
TOTAL OR AVERAGE-----	7,632	3,493	4,139	91,497	12,394	3.7	452	12,513	3.7	457

TABLE 8.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPEO ACCORDING TO MILK PRODUCTION RANGE OF THE HERO MATES

JERSEY										
MILK PRODUCTION RANGE OF HERO MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERO MATES NUMBER	AVERAGE PRODUCTION			HERO MATES		
					DAUGHTERS MILK POUNDS	BUTTERFAT % POUNDS	FAT POUNDS	MILK POUNDS	BUTTERFAT % POUNDS	FAT POUNDS
UNDER 6500----	96	39	57	933	6,030	5.1	308	6,186	5.1	316
6500 - 7499----	513	158	355	5,511	6,806	5.2	355	7,109	5.1	365
7500 - 8499----	973	338	635	11,103	7,718	5.2	404	8,007	5.1	412
8500 - 9499----	635	209	426	7,654	8,482	5.3	446	8,915	5.1	456
9500 - 10499----	165	50	115	1,970	9,099	5.2	478	9,869	5.0	492
10500-11499----	33	5	28	341	9,752	5.2	505	10,916	4.7	512
11500-12499----	10	1	9	91	9,524	5.2	493	11,843	4.6	543
12500-13499----	3		3	29	7,447	5.4	402	12,987	3.9	511
13500-14499----	1		1	2	8,415	5.9	493	13,640	3.9	529
TOTAL OR AVERAGE-----	2,428	799	1,629	27,626	7,785	5.2	408	8,172	5.1	417

TABLE 9.--AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPEO ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERO MATES

JERSEY										
BUTTERFAT PRODUCTION RANGE OF HERO MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERO MATES NUMBER	AVERAGE PRODUCTION			HERO MATES		
					MILK POUNDS	BUTTERFAT % POUNDS		MILK POUNDS	BUTTERFAT % POUNDS	
UNDER 275-----	8	2	6	66	5,231	4.9	256	5,644	4.6	260
275 - 299-----	23	11	12	194	5,881	4.9	266	5,968	4.8	288
300 - 324-----	55	21	34	554	6,208	4.9	306	6,491	4.9	315
325 - 349-----	158	62	96	1,700	6,499	5.1	330	6,958	4.9	340
350 - 374-----	263	102	161	3,029	6,904	5.1	353	7,317	5.0	363
375 - 399-----	405	152	253	4,294	7,247	5.2	376	7,649	5.1	387
400 - 424-----	447	179	268	4,893	7,702	5.2	402	8,096	5.1	412
425 - 449-----	443	185	258	5,258	8,065	5.3	426	8,517	5.1	437
450 - 474-----	310	142	168	3,583	8,557	5.3	455	8,836	5.2	461
475 - 499-----	157	70	87	1,949	8,910	5.3	474	9,289	5.2	485
500 - 524-----	88	39	49	1,119	9,394	5.4	504	9,747	5.3	512
525 - 549-----	44	23	21	691	9,658	5.5	529	10,048	5.3	534
550 - 574-----	17	8	9	188	10,344	5.4	562	10,472	5.3	560
575 - 599-----	5	3	2	58	11,207	5.5	614	10,743	5.5	588
600 - 624-----	2	1	1	10	11,407	5.2	597	11,556	5.2	602
625 - 649-----	2		2	32	9,924	5.3	522	11,930	5.4	639
OVER 649-----	1	1		8	12,914	5.8	745	11,256	5.8	658
TOTAL OR AVERAGE-----	2,428	1,001	1,427	27,626	7,785	5.2	408	8,172	5.1	417

TABLE 10.-AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERO MATES

BROWN SWISS

MILK PRODUCTION RANGE OF HERO MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERO MATES NUMBER	AVERAGE PRODUCTION				HERD MATES	
					DAUGHTERS		BUTTERFAT		BUTTERFAT	
					MILK POUNDS	BUTTERFAT % POUNDS		MILK POUNDS	BUTTERFAT % POUNDS	
7500 - 8499----	10	4	6	109	7,809	4.1	318	8,184	4.1	333
8500 - 9499----	38	12	26	354	8,773	4.0	352	9,070	4.0	367
9500 -10499----	94	42	52	912	9,934	4.1	409	10,029	4.1	408
10500-11499----	126	53	73	1,142	10,760	4.1	443	10,997	4.1	447
11500-12499----	88	41	47	898	11,814	4.1	484	11,983	4.1	487
12500-13499----	17	7	10	128	12,417	4.2	516	12,770	4.1	523
13500-14499----	2	1	1	20	14,029	4.0	558	13,821	4.0	547
TOTAL OR AVERAGE-----	375	160	215	3,563	10,613	4.1	435	10,811	4.1	439

TABLE 11.-AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERO MATES

BROWN SWISS

BUTTERFAT PRODUCTION RANGE OF HERD MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERD MATES NUMBER	AVERAGE PRODUCTION					
					DAUGHTERS		HERD MATES			
					MILK POUNDS	BUTTERFAT % POUNDS		MILK POUNDS	BUTTERFAT % POUNDS	
300 - 324-----	4	1	3	51	7,528	3.8	289	8,319	3.8	319
325 - 349-----	13	5	8	120	8,033	4.0	324	8,623	3.9	339
350 - 374-----	23	12	11	190	9,038	4.0	359	9,057	4.0	363
375 - 399-----	31	14	17	330	9,308	4.0	377	9,758	4.0	388
400 - 424-----	70	28	42	656	10,037	4.1	412	10,116	4.1	412
425 - 449-----	78	36	42	738	10,651	4.1	432	10,831	4.0	438
450 - 474-----	61	31	30	552	11,102	4.1	459	11,348	4.1	462
475 - 499-----	47	25	22	499	11,660	4.1	481	11,841	4.1	485
500 - 524-----	37	20	17	324	12,277	4.2	518	12,282	4.1	509
525 - 549-----	8	2	6	82	11,884	4.2	502	12,753	4.2	537
550 - 574-----	3	1	2	21	13,634	4.1	562	13,252	4.2	557
TOTAL OR AVERAGE-----	375	175	200	3,563	10,613	4.1	435	10,811	4.1	439

TABLE 12.-AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO MILK PRODUCTION RANGE OF THE HERO MATES

SHORTHORN

MILK PRODUCTION RANGE OF HERO MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERO MATES NUMBER	AVERAGE PRODUCTION			
					DAUGHTERS		HERO MATES	
					MILK POUNDS	BUTTERFAT % POUNDS	MILK POUNDS	BUTTERFAT % POUNDS
UNDER 6500----	2	1	1	16	6,591	3.9 256	6,123	4.0 242
6500 - 7499----	16	10	6	104	7,860	3.8 302	7,133	3.9 278
7500 - 8499----	42	21	21	428	8,015	3.9 312	8,031	3.9 311
8500 - 9499----	44	20	24	376	8,806	3.8 336	8,929	3.8 340
9500 - 10499----	14	5	9	118	9,606	3.9 373	9,957	3.8 383
10500-11499----	2		2	15	9,258	3.6 333	10,805	3.6 386
12500-13499----	1		1	6	7,428	3.4 254	13,471	3.7 493
TOTAL OR AVERAGE-----	121	57	64	1,063	8,458	3.8 325	8,521	3.8 327

TABLE 13.-AVERAGE PRODUCTION OF MILK AND BUTTERFAT OF DAUGHTERS OF NON-AI SIRES SUMMARIZED 08-62, GROUPED ACCORDING TO BUTTERFAT PRODUCTION RANGE OF THE HERO MATES

SHORTHORN

BUTTERFAT PRODUCTION RANGE OF HERO MATES POUNDS	SIRES NUMBER	MAINTAINED OR INCREASED PRODUCTION NUMBER	DECREASED PRODUCTION NUMBER	DAUGHTERS WITH HERO MATES NUMBER	AVERAGE PRODUCTION			
					DAUGHTERS		HERO MATES	
					MILK POUNDS	BUTTERFAT % POUNDS	MILK POUNDS	BUTTERFAT % POUNDS
UNDER 275-----	9	5	4	51	7,524	3.8 287	6,766	3.8 260
275 - 299-----	16	8	8	149	7,840	3.8 299	7,563	3.8 287
300 - 324-----	37	16	21	386	8,055	3.9 312	8,154	3.8 312
325 - 349-----	28	14	14	226	8,649	3.9 334	8,726	3.8 335
350 - 374-----	16	4	12	133	9,203	3.8 350	9,408	3.9 362
375 - 399-----	13	6	7	96	9,577	3.9 369	9,898	3.9 383
425 - 449-----	1	1		16	10,960	4.3 473	10,385	4.3 448
475 - 499-----	1		1	6	7,428	3.4 254	13,471	3.7 493
TOTAL OR AVERAGE-----	121	54	67	1,063	8,458	3.8 325	8,521	3.8 327